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ABSTRACT

The study investigated the effect of object preference on the learning of signs by 12 severely and profoundly retarded children (4-7 years old). Signs were chosen that were two-handed, symmetrical, and abstract. Training of each sign consisted of 10 individual training sessions using operant techniques. Results revealed no differences in the learning of signs for preferred versus nonpreferred objects. Three possible reasons for the findings (small sample size, none of the objects were most highly valued, and the use of operant techniques) are offered. (Author/CL)

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Effect of Object Preference on Sign Learnability by Severely and Profoundly Retarded Children: A Pilot Study

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Abstract

Teaching signs, as an alternative to speech, to severely and profoundly retarded children has become commonplace. Research is needed on the variables that might make signs relatively easy or difficulty to learn. The present study investigated the effect of object preference on the learning of signs. Twelve severely and profoundly retarded children were shown all possible pairwise combinations of six objects to determine each child's preference. The signs for the objects were two-handed, symmetrical, and abstract. Training of each sign consisted of 10 individual training sessions using appropriate operant techniques. The results indicated no differences in the learning of signs for the preferred versus nonpreferred objects. Three possible explanations for this finding were discussed.

Effect of Object Preference on Sign Learnability by Severely and Profoundly Retarded Children: A Pilot Study

Recently an increasing number of clinicians and teachers have become interested in the use of signs by mentally retarded persons who have normal hearings but are not able to communicate effectively by the usual spoken means (Fristoe & Lloyd, 1978; Goodman, Wilson, & Bowstein, 1978). Goodman, et al. reported that considerably more than 10,000 handicapped, hearing persons were engaged in sign programs at the time of their survey. Considering the relative recency of these programs, there are probably many more handicapped persons with normal hearing now in these programs.

Numerous reports of the use of manual communication with retarded persons were discussed by Lloyd (1976) and more recently by others (e.g., Poulton & Algozzine, 1980; Reichle, Williams, & Ryan, 1981). Stremel-Campbell, et al (1977) reported the success of a manual sign communication program with nine trainable mentally retarded children and adolescents. They also reported the eventual production of speech by six of their nine subjects. Hobson and Duncan (1979) reported successful training, and retention after training was suspended, of manual signs with nine profoundly retarded, nonverbal adults. However, despite the wise usage of signs and the apparent success of sign training, the knowledge regarding the learnability of particular signs and the selection of an initial sign lexicon based on various factors affecting the learning of signs is quite limited. This limited knowledge is due to the preponderance of publications being clinical reports, case studies, and poorly controlled clinical studies. In addition, the relatively few well controlled studies with retarded subjects have mostly used verbal subjects not the most severely retarded subjects who have the greatest need for such training.

The lack of knowledge regarding what factors are most critical in determining the learnability of signs by severely retarded persons can lead to the choice of inappropriate sign training approaches or the inefficient application of an appropriate approach resulting in inadequate educational treatment. Clearly there is a need for carefully controlled research directed at determining which factors affect the learning of signs by severely retarded persons with serious communication disorders.

This study is the first in a series of studies that will investigate which factors are most important for severely and profoundly retarded children to learn to use normal signs. The present study was designed to investigate just one variable: object preference. Most authors suggest that the initial sign lexicon should consist of signs for referents that the child desires. However, we can find no studies to support this assumption. It may well be that signs for objects preferred by the child will be learned more readily than other signs. On the other hand, it is also plausible that by using relatively powerful operant techniques, the child's preference for one object over another becomes immaterial. The present study investigated this question.

Method

Subjects

Twelve severely and profoundly retarded children with chonolcgical ages between 56 and 93 months ($\bar{X}$ = 74.17, SD = 11.23) were selected for sign training. Three of the children had some minimal speech and/or a few signs (less than 10 words) in their repertoire. The other nine children used no speech or signs. All of the children were attending a private day school for severely and profoundly retarded children. While some of the children were not ambu-

latory, they all had use of their arms and hands. All subjects were found to be functioning at least at stage five of Piaget's sensorimotor period based on their Uzgiris and Hunt (1975) object permanence scores. In addition, all of the children demonstrated some imitation skill prior to their selection for this study.

Procedure

Six two-handed symmetrical signs for objects were selected that were judged to be abstract by students in an introductory Special Education course. The students were asked to view a videotape and rate the 32 signs on it from 1 (no relationship to its referent) to 7 (very strong relationship to its referent). Only signs with average ratings less than 3.0 were considered. The six signs selected were: egg, toy, bear, blanket, sock, and hot dog.

In order to determine each child's preference for the six objects, each object was presented twice with each other object and the child was asked to select one of the two objects placed in front of him/her. Each time an object was selected, it was assigned a score of one. Thus, each object received a total score of from zero to 10. The objects were then ordered from least preferred to most preferred and dichotomized into the three most and three least preferred for each child.

Training of the signs for each object then began. Each child received individualized training on each sign with the order of presentation of most preferred to least preferred objects counter balanced. Two signs were trained in each phase of ten 20 minute sessions. Thirty sessions were needed for all six signs. The trainers used the time delay procedure found to be successful by Browder, et al. (1981). Positive reinforcement, including edibles, were used as necessary to maintain attention to the task and responses.

For each sign the child was considered successful, and given a score of one, in each session in which he/she signed correctly on 80% of the requests. Thus, a child could receive a score for each sign of from zero to ten depending on the number of "successful" sessions. Reliability of the scoring was determined by having a second observer view videotapes of a sample of the sessions. Agreement of the second observer with the original scores was .96.

Results and Discussion

The data were analyzed using the SPSS procedure for the t-test for matched pairs (Nie, et al., 1975). The first analysis compared the three signs for the three most preferred objects of each subject with the three signs for the three least preferred objects of each subject for all 12 subjects. The result of this analysis indicated no significant difference ($t = .66$, $df = 11$, $p > .5$). Because five of the subjects had scores of zero for all six signs, this analysis was repeated using only the seven subjects who had scores greater than zero. The result of this analysis also indicated no significant difference ($t = .65$, $df = 6$, $p > .5$). Since this lack of significance could be due to the somewhat artificial way in which we dichotomized the six signs into the three most preferred and three least preferred, we also did comparisons of the sign for the single most preferred object with the sign for the single least preferred object. With all twelve subjects included and with only the seven subjects with scores greater than zero included, the results were still nonsignificant although considerably closer to statistical significance ($t = 2.01$, $df = 11$, $p > .07$ and $t = 2.26$, $df = 6$, $p > .06$, respectively).

There are a number of plausible explanations for these findings which seem to indicate that object preference is not an important variable for learning signs. First, the small sample size reduces the power of the statistical test of significance especially considering that five subjects did not learn any

of the signs. Second, no attempt was made to use the most preferred objects for the children in the study. The objects used were merely more or less preferred relative to each other. Thus, it is very possible that none of the objects were highly valued enough by the children to be considered truely preferred objects.

Another possible explanation of these findings could be that object preference just is not important for sign learning if operant techniques are used. Since the child is being reinforced with social reinforcement and, when deemed necessary, edibles, the additional power of objects that the child desires may not add to the rate or quantity of sign learning. Thus, the use of operant techniques, including using social and primary reinforcements, may reduce or eliminate the importance of object preference for the learning of signs.

In conclusion, when teaching signs using operant techniques, the inclusion of object preference as a consideration appears to be unnecessary. The only exception may be that each child might have one or two objects (including edibles as objects) that s/he values so highly that the signs for these objects may be learned more readily. In addition, when teaching techniques do not make use of social and primary reinforcements, the object preference may be more relevant to the learning of signs.

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